

# QwikSeal™

*an emerging alternative to conventional  
wet fastener installation*

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# In the Olden Days . . .

They actually mixed a Semkit or thawed a batch of pre-mixed frozen sealant, then manually applied it to individual fasteners.

Wet fastener installation was a painstaking, touch-labor intensive, incredibly messy process.

# In the Olden Days . . .

Sealant got on everything and even gummed up the tooling. The artisans hated just about every aspect of the wet installation process, from mixing to hazmat disposal, and every step in between.

# In the Olden Days . . .

And waste – there was plenty of it.

Any sealant that didn't get used up before its pot life expired got thrown away.



These are still the Olden Days.

*But help is on the way.*

# QwikSeal Pre-Sealed Fastening Technology

- Genesis
  - NAVAIR SBIR (TPOCs Jim Muller, Fred Lancaster)
  - Phase II just completed
- Objective

Develop pre-coated, self-sealing fastener technology

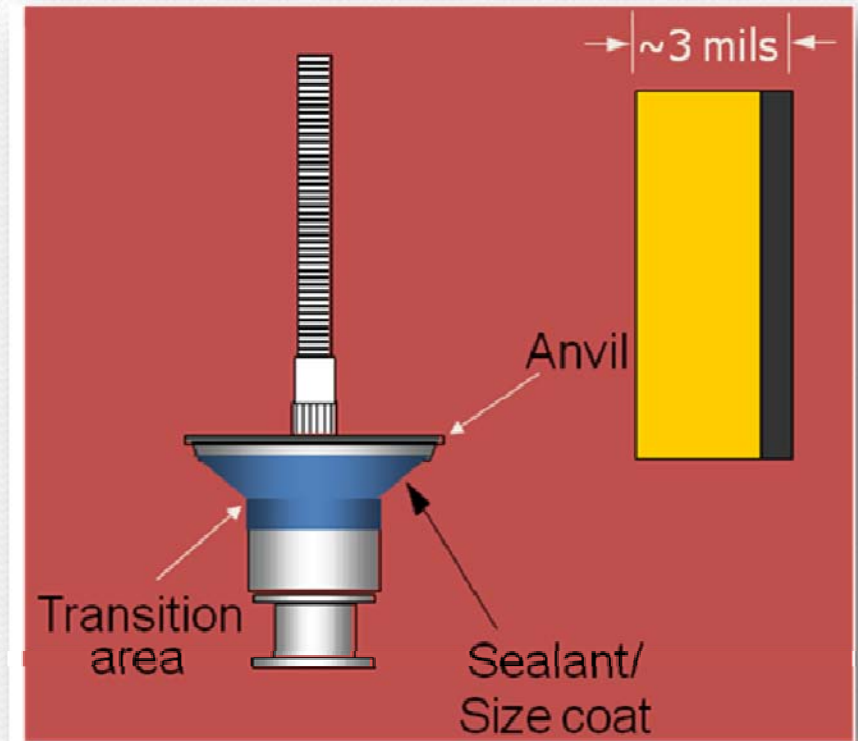
  - No change to fastener
  - No change to hole size
  - No change to tooling
  - Applicable to all fastener types  
and interference conditions





# QwikSeal Design Approach

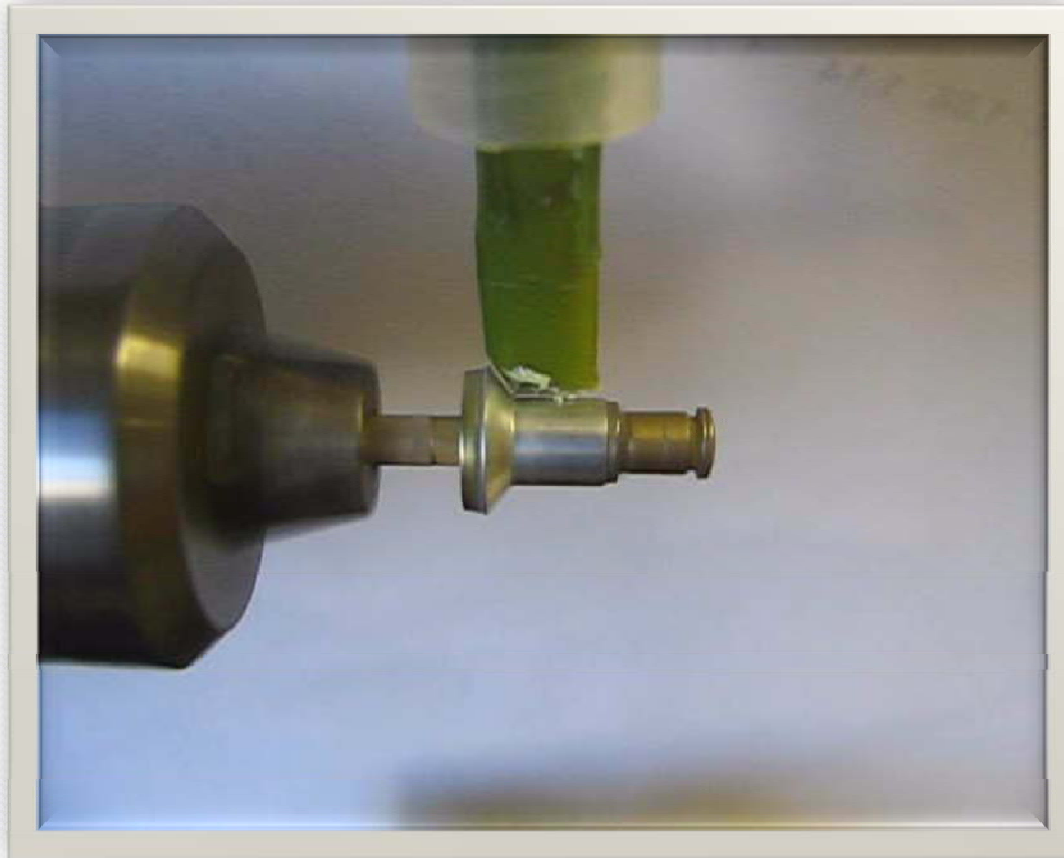
- Start with AMS3277-qualified sealant (PR-2001B)
- Slightly mod chemistry to block cure when mixed, deprived of moisture
- Pre-apply cure-blocked sealant to fastener
- Overcoat with moisture-impermeable size coat



*Size coat franges on installation, allowing cure-blocked sealant to flow normally through hole. Ambient moisture take-up unblocks cure.*

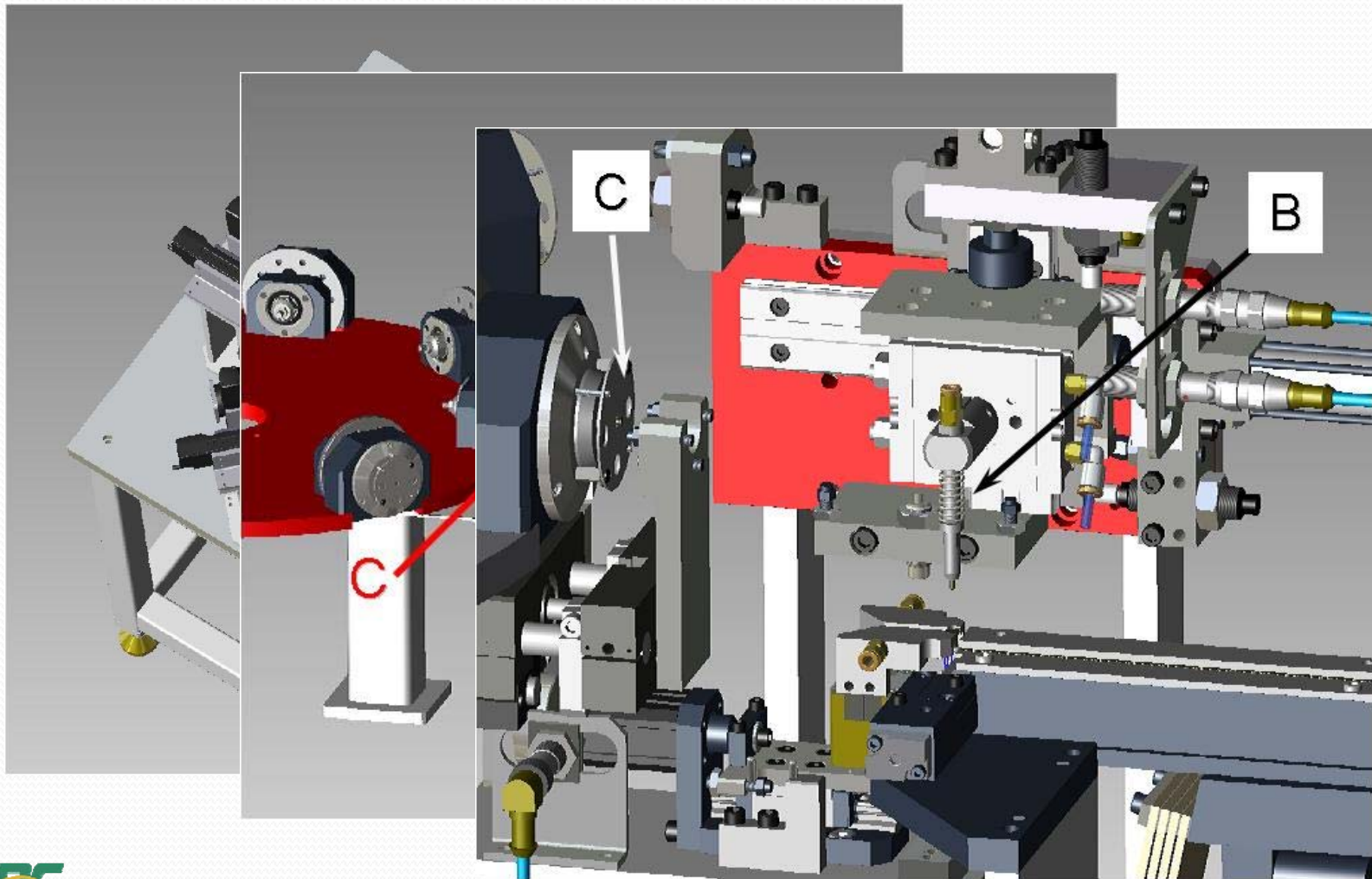


# Sealant Application by Electronic Fluid Dispensing



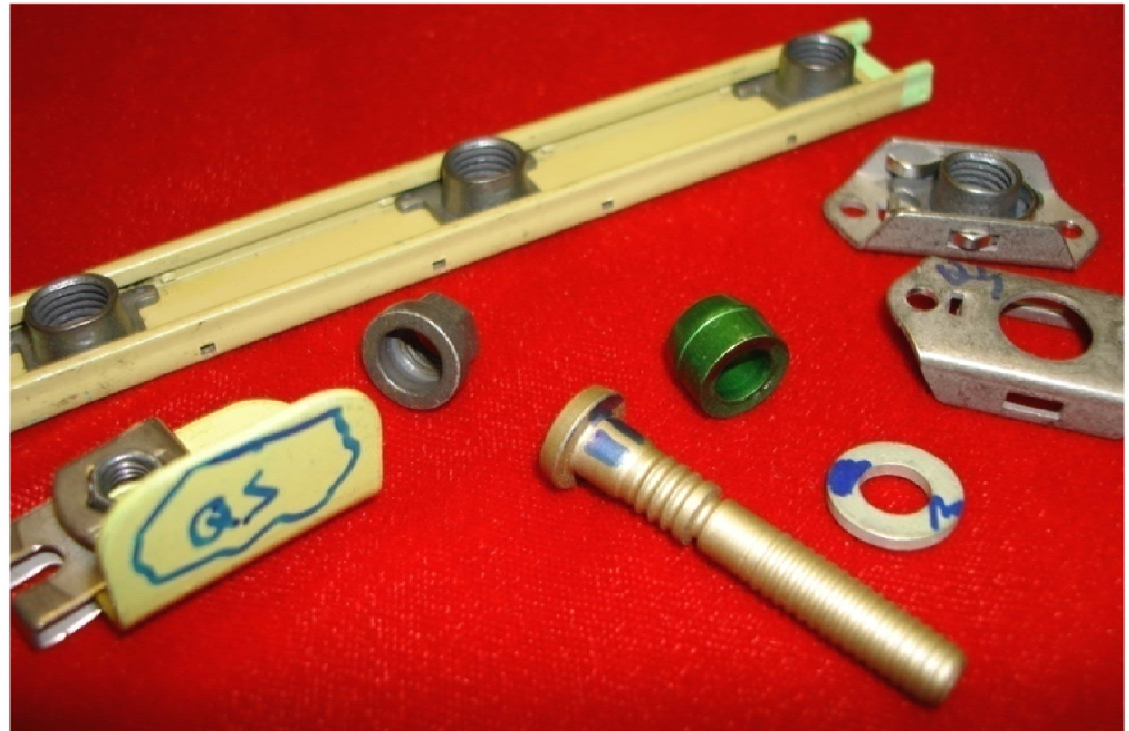
*Metered dispense cycle ensures consistent quality, reduced hazmat footprint*

# QwikSeal Automation Design



# Other Potential Applications

- Nutplates
- Channels
- Donuts
- Faying surfaces



# QwikSeal Status

- Phase II completed end of Dec – TRL 4
  - Continuing development limited pending add'l funding
- Automation
  - QwikSeal machine design – 85% complete
    - 1 million fastener/month/machine initial rate goal
- Joint development agreement signed with PRC-DeSoto/PPG Aerospace
  - PPG has assumed sealant formulation optimization
  - SMRC continues UV cure size coat optimization on IR&D
- Lockheed Martin F-35 endorsement pending
  - Adoption contingent on qual and favorable cost-benefit analysis



# Steps to Transitioning QwikSeal

- Complete sealant and size coat optimization
- Establish appropriate qualification test plan
  - Coordinated with AFRL/NAVAIR, primes
  - Including corrosion, puffer box, etc.
- Perform cost-benefit analysis (LMA)
- Build, troubleshoot, tune QwikSeal application testbed
  - Base at PRC-DeSoto ASC-Los Angeles
- Complete qualification testing

# QwikSeal to the Marketplace

*SMRC and PRC-DeSoto International/PPG Aerospace have entered into an agreement whereby PPG will offer JIT QwikSeal sales/services to OEMs and depots through its global network of Application Support Centers (ASCs).*



*Thank you for your attention!*

Questions?

For more info

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